Academic course description

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| BACHELOR ‘S PROGRAMME2nd YEAR OF STUDY, 1st SEMESTER |

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| **Course title** | | **General Chemistry** |
| Course code | |  |
| Course type | | full attendance |
| Course level | | 1st cycle (bachelor’s degree) |
| Year of study, semester | | 2nd year of study, 1st semester |
| Number of ECTS credits | | 4 |
| Number of hours per week | | 4 (2 lecture hours + 2 seminar hours) |
| Name of lecture holder | | Assoc.prof.PhD. Danut Cozma |
| Name of seminar holder | | Assoc.prof.PhD . Danut Cozma |
| Prerequisites | | Advanced level of English |
| A | **General and course-specific competences** | |
|  | **General competences:**   * Possession of cognitive / cognitive transfer skills by analogy specific to the domain and field of specialization and their proper use in a given professional context.Possession of cognitive skills / techniques and methods of learning / assessment applicable to the field and field of specialization and their use to identify their own training needs / training needs in a team-building type process.   **Course-specific competences**:   * Appropriate use of the theoretical foundations of applied engineering sciences. Providing research support activities. Use of standard laboratory or industrial laboratory equipment for conducting research experiments | |
| B | **Learning outcomes** | |
|  | Upon successful completion of this discipline, students will be able to:  -Explates the correlation between positioning in the periodic system - the chemical properties of the elements.  -Explates the correlation between the type of chemical bonds and the properties of the substances | |
| C | **Lecture content** | |
|  | * Fundamental laws of chemistry. * Classification of elements. Study of periodic and non-periodic properties. Non-metallic function and metallic function of the elements. * Types of chemical bonds. Correlation chemical bonds-properties of substances. * Chemical reaction. * Metals and non-metals - methods of obtaining and purifying. Compound substances: oxides, bases, acids, salts * Metals and non-metals - methods of obtaining and purifying. Compound substances: oxides, bases, acids, salts. | |
| D | **Recommended reading for lectures** | |
|  | 1.Mirela Goanță, Ioana Aurelia Gorodea. Fundamentele chimiei. Ed. Ștef, 2012.  2.S.Ifrim, I.Rosca. Chimie generala. Ed.Tehnica, Bucuresti, 1989.  3. Gh. Marcu, M. Rusu, V. Coman – Chimie anorganica. Semimetale si nemetale, Editura Eikon, 2007.  4.D.Gânju,”Substanţe tehnice anorganice”, Ed.Univ.”Al.I.Cuza” Iaşi1997  5. I.I.Nicolaescu,V.G.Canţer,”Fizica corpului solid”, Chişinău,1991.  6. Industrial inorganic pigments I ed. by Gunter Buxbaum. Wiley-VCH, 1998.  7. Gerald F. Dionne. Magnetic Oxides. Springer Science+Business Media, LLC 2009.  8. Frank J. Owens, Charles P. Poole, Jr..The New Superconductors. Kluwer Academic Publishers.2002. | |
| E | **Seminar content** | |
|  | * Processing of work safety rules. Presentation of the laboratory theme * Chemical calculations. * Solutions. Modes of expression of solution concentrations. Determination of solubility of substances. Determination of crystallization water from crystalline hydrides - CuSO4 \* 5H2O. * Methods for purification and separation of substances (filtration, recrystallization, sublimation). * Physical and chemical transformations * Classification of chemical reactions. Chemical reactions in aqueous medium (proton transfer reactions, electron transfer reactions). * Obtaining classes of compounds of metals and non-metals. | |
| F | **Recommended reading for seminars** | |
|  | 1. J. A. Beran. Laboratory Manual for Principles of General Chemistry. John Wiley & Sons.2011.  2.Handbook of preparative Inorganic Chemistry, Edited by G.Bauer,A.Press, London 1963.  3.Spencer L. Seager, Michael R. Slabaugh. Safety-Scale Laboratory Experiments for Chemistry for Today: General, Organic, and Biochemistry, 7e. Brooks/Cole, Cengage Learning. 2011. | |
| G | **Education style** | |
| learning and teaching methods | | Lecture, debate, conversation, laboratory experiment, exercise and problem solving |
| assessment methods | | * Written exam * Assessment along the way |
| Language of instruction | | English |